

Agricultural.
The Rotation of Crops.
At this late day it is not worth my while to enter into a discussion to prove that, with our present style of farming, a rotation of crops is necessary, for like a boy's arithmetical problem, it proves itself.
Whenever nature is left untrammelled by the farmer she invariably produces a rotation of crops. Our artificial grasses soon cease to struggle with the natural ones; and even the latter succeed one another in a most regular order. In our southern states, when the pine and other soft woods are cut off, the scrub oak and other hard wood succeed them, to give place in their time to softer ones. Nor need we go far for an illustration of the fact which I wish to illustrate. All have noticed in our own section of the Union, that when a forest of oak, hickory or chestnut, such as the latter, it is followed by a growth of chestnut. It may be argued that more or less of hickory will spring up among the chestnut; such is the case, but the chestnut will show that such trees seldom attain much before they are "smothered out" by those which seem to be their legitimate successors. All practical agriculturists will acknowledge that with our present system, a rotation or change of some kind or other, is the missing link of success. Then why this necessity? The answer to this question is simple, and is embodied in the assertion that the soil becomes exhausted under consideration for the particular crop or crop under consideration. Is this answer satisfactory, and does it cover all the ground? Does not analysis prove that the soil is not equally exhausted in all respects? No, it is not. The soil only differs in their proportions? Our rotation here (Chester co.), consists of the four crops, corn, oats, wheat, and clover, and the clover is the only one that is not a crop of the soil. I have placed them, "The soil is turned under and the corn is planted, and the next spring is followed by the oat crop. Old farmers tell me that it is no more than to plant clover (for the grain) upon soil—that it will "go down," be full of weeds, &c. The truth of this assertion I have never verified. I have, however, and I have the term "second crop corn" (corn after corn) is synonymous with "half a crop," and shows that corn cannot follow corn for many crops. Now give me a field of a crop of potatoes without any manure, (if the land is good) and if you are fortunate to select a favorable season, a good crop of potatoes will be the result. Next, give it a second crop of corn, and if the season is as favorable as that of the first crop, as large, if not larger, yield will be the result, yet we are told that potatoes are an exhausting crop.
It has been proved by the experiments of John De Saussure that all plants have excretory powers, which may be termed absorbent and excretory powers, by the exercise of the first they take into their circulation various compounds which are excreted by the second. It is my article to discuss resolve them into their chemical constituents, some of which they appropriate to their reorganization of their structure, some they excrete, and some they discharge. To prove this, let the leaves of some plant of rapid growth be immersed into water, having in the water a solution of lead, or other soluble substance whose presence can readily be detected, and in course of time the earth at or near the root of the plant will become impregnated with the matter in solution; this matter, if poisonous to the plant, will soon collect in a sufficient amount to cause first a diseased existence, and finally death. Can it be that a crop of corn, or other crop, excrete enough of any one deleterious substance to interfere with the growth of a succeeding similar crop? And it is my theory, that this excretory deleterious substance is favorable to the growth of the potato or other root crop? All who have old garden know that every fall, they will give satisfaction as gardeners. Let such a plot be cropped with potatoes for one or at most two seasons, and note the results; nothing has been added, and yet the garden will produce vegetables as before.
Before I close allow me to stop up the hole through which some of the readers may be disposed to enter a wedge with which to split my argument.
In the early part of my communication I have stated that with our present system of farming a rotation of crops is a necessity, &c. I made this reservation, because under a system which I will hereafter allude to, it seems to be very free from necessity.
The Rev. Samuel Smith, of Lodi, Wisconsin, Northampton, England, has for eighteen years past in succession raised crops of wheat from the same plot, without the application of any manure whatever. Now, says my critic, where is the excretory power? Smith's experiment, if examined into, neither proves nor disproves, for his practice is a strange combination of approval and disapproval. He marks out his plot into four beds three feet wide, and every alternate one of which he plants with three rows of wheat one foot asunder, and sowing Fall's theory, the atmosphere, and applying all the useful, he thought works and cultivates all the vacant spaces and by the time the crop is harvested they are ready to receive the next one, and so on over the whole of the experiment. Such is the experiment, and the result is that from a crop of twenty-five bushels per acre, he has raised only one-half (Smith's own report) for the first year, and for the second year he has raised only one-third. He has not admitted the benefits of manure, but he has admitted the benefits of raising successive crops furnishes a forcible contradiction of the theory that rotation is a necessity.
If, then, wheat excretes substances which are poison when again taken into its circulation, how does it happen that they are not in the way of the third crop?
Does not Smith's constant sowing and pulverization of the soil bring these deleterious substances to the surface, by which means they are absorbed by the atmosphere, and the atmosphere's chemical composition is so altered that they are again fitted to become food for the plant?
With the comparative profits and loss of Smith's system I at present have nothing to do, and hence do not wish to be understood to be advocating the reduction of his experiment to field.
In the Country Gentleman of the 5th, 12, of Jacksonville, states that he prefers phosphate (homemade) to any other fertilizer, and that it is his "more immediate action." Is not the action which will produce eighty-five bushels of oats in four months and one-half bushel, immediate enough, can it be that this phosphate is in fact time? To keep the stimulating acid away from the desire of his and try it—London Grove, Chester County, Pa.—Country Gentleman.

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